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# ERT Service Chart

ALBA 9002

**STEREO** radiogram incorporating PW36 chassis covering long, medium and short wavebands. Waveband and radio/gram switching is by inter-locked push-buttons. Output from audio channels is paralleled for radio and mono records. Volume and tone controls are ganged and there is a separate manual balance control.

**Mains.** 200-225V, 225-250V AC only. (Chassis is AC/DC but gram motor is AC only.)

**Consumption.** 65W.

**Wavebands.** MW 194-550m(1550-545kc/s), LW 1100-2000m(270-150kc/s), SW 16-55m(18.7-5.45mc/s).

**Valves.** UCH81 frequency-changer, UBF89 IF amplifier and detector, UCL82 lefthand channel audio amplifier and output,

UCL82 righthand channel audio amplifier and output.

**Rectifier.** Half-wave metal rectifier D1. Part number 13641.

**Pilot lamp.** 24V 100mA. MES.

**Thermistors.** Heater chain V1005, pilot lamp shunt V1010.

**IF.** 470kc/s.

**Output.** 3W each channel.

**Aerial.** Internal ferrite rod for medium and long waves. Socket for external aerial for short wave.

**Record changer.** BSR UA25.

**Pickup cartridge.** SXIM.

**Stylus.** Turnover ST3.

**Manufacturer.** Alba (Radio and Television) Ltd.

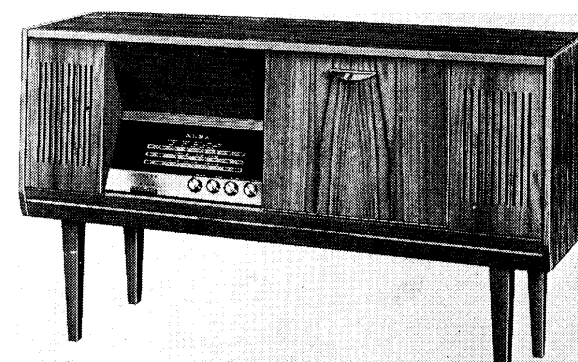
**Service department.** 52-58 Tabernacle Street, London EC2. Tel.: Clerkenwell 1322.

## DISMANTLING

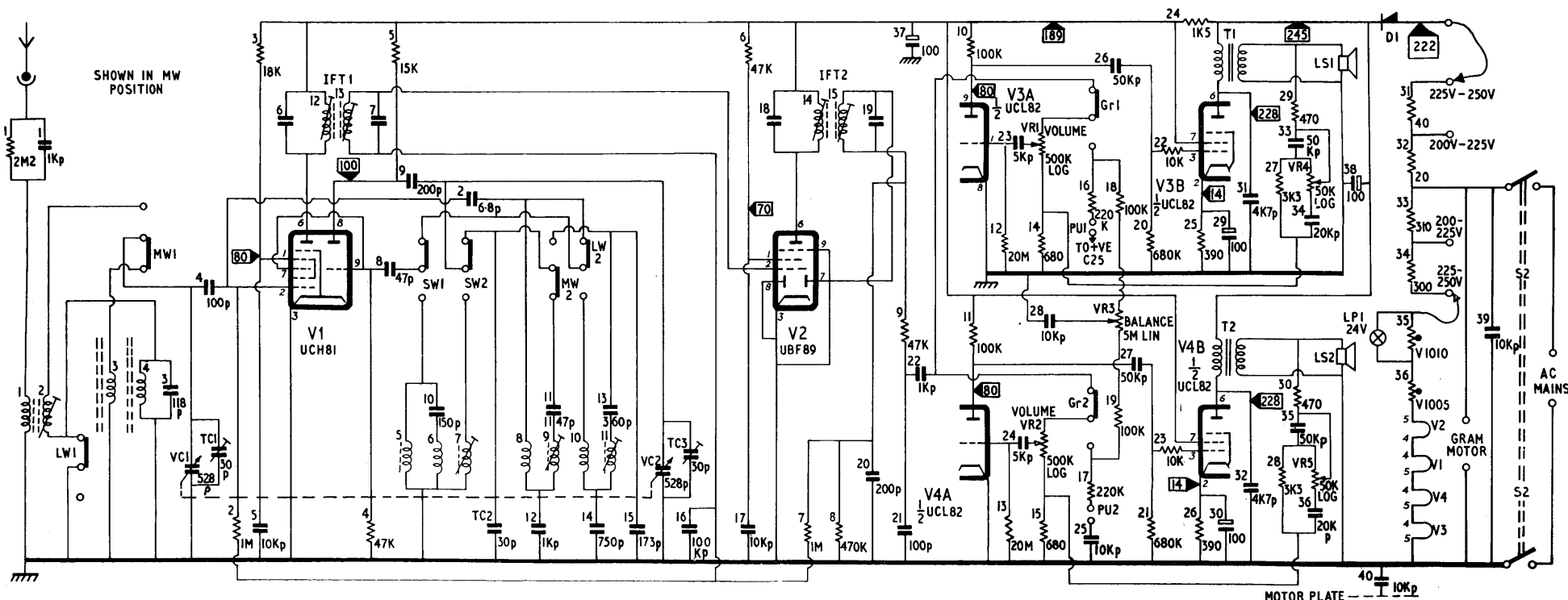
**Chassis removal.** Remove back cover. Take off four front control knobs. Remove three 4BA nuts and washers securing the chassis. Disconnect leads to speakers, motor and SW aerial by pulling off clip connectors. Chassis may now be lifted out.

## DESCRIPTION

**RF circuits.** Ferrite rod aerial is coupled via MW coil L3 or LW coil L4 to the mixer grid V1(UCH81) via wavechange switching and C4. Aerial coils are tuned by VC1/TC1 and their respective fixed capacitors C2 and



Sideboard style cabinet finished in teak veneers incorporates drop down front concealing autochanger and record storage space



C3. AGC is applied to the grid of the mixer via R2.

SW signals are fed in from external aerial and taken via isolating network R1/C1 and input transformer L1/L2 to the wavechange switch and V1 grid.

Triode section of V1 is arranged as a parallel-fed local oscillator. On LW the tuned circuit comprises C13, L11, padder C14 and shunt capacitor C15. On MW, C11, L9 and padder C12 are shunted by trimmer TC2. For SW operation the tuned winding is L7. On all bands main tuning is by VC2 with TC3.

**IF and detector.** The 470kc/s signal produced in frequency-changer V1 is coupled via IFT1 to the IF amplifier V2(UBF89). Secondary of IFT2 is coupled to one diode in V2, this operates as detector and AGC voltage source. The other diode is taken to chassis.

The DC component of the demodulated signal appearing across detector load R8, is applied, via filter components R7/C16, as AGC bias to the grid of IF amplifier V2 and via R2 to the grid of mixer V1.

Audio signals from the detector circuit pass via IF filter circuit C20, R9, and C21, through C22 to the gram/radio section of the wavechange switch.

**Audio circuits.** Radio input (via C22), or gram input (via PU sockets), is selected by ganged switch sections GR1 and GR2. Two identical two-stage audio amplifiers are used. These operate in parallel for radio and are switched to provide separate channels when playing records.

Outputs from the pickup cartridge are fed via R16 and R17 to the amplifier inputs. Outputs are balanced by R18, R19 and VR3, the latter being the manual balance control. Pickup wiring is isolated from chassis by C25 and R16/R17. The motor plate is isolated by C40.

Inputs to the first stages are via ganged volume controls VR1 and VR2. Outputs from the preamplifier stages are fed in conventional manner to the respective output stages. Each output stage incorporates a frequency-selective negative feedback network. In V3B, the feedback circuit, taken from the secondary of the output transformer T1 and comprising R29, C33, R27, VR4 and C34, is applied across R14 in the V3A grid circuit. A similar circuit operates with V4A and V4B.

Negative feedback is thereby increased at

low volume settings, giving a form of compensated volume control. Variable elements (VR4 and VR5) in the feedback networks form a manual tone control. VR4 is ganged with its counterpart (VR5) in the V4B circuit.

The valve heaters are supplied via a series voltage-dropping chain from the mains input. Dial lamp is included in the chain and is shunted by thermistor R35. This ensures the heater chain remains intact in the event of pilot bulb failure.

HT is derived from half-wave metal rectifier D1 with C38 acting as reservoir. Smoothing is supplied by R24 and C37.

### SERVICE NOTES

**Circuit diagram.** Push-button switching shown in medium wave position. Voltage readings taken with 20,000ohms/volt meter, under no-signal conditions.

**Dial drive.** Diagram shows cord routing and relative positions of drive drum and pointer with the gang fully meshed. The position of the pointer on the cord can be adjusted by rotating the gang until the pointer is over the slot between calibration points 2 and 3, then inserting a screwdriver through the slot and adjusting pointer, as necessary, by sideways pressure of the screwdriver.

### ALIGNMENT

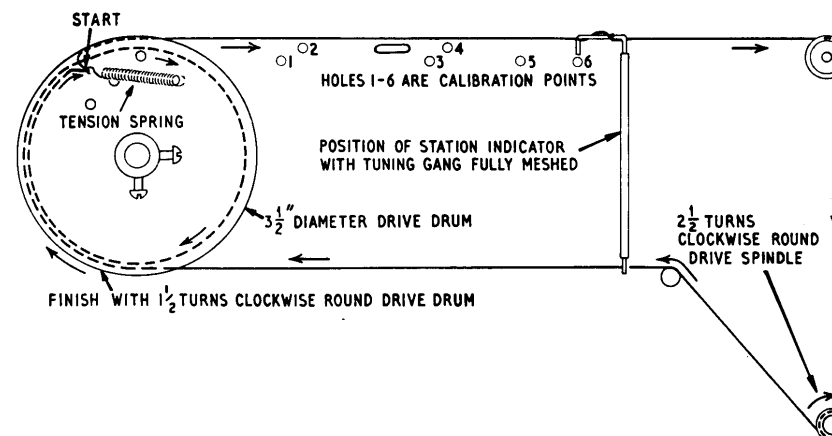
**Equipment required.** Modulated signal generator covering long, medium and short wavebands and the IF, output meter 3ohms, dummy load 3ohms 5W, transmitting loop, trimming tools.

Before commencing alignment, check for output on both channels. Connect output meter in place of speaker across secondary of one output transformer (or Avo 8 on 10V AC range connected in parallel with speaker). Connect 3ohm dummy load across secondary of the other transformer. Turn ganged volume controls to maximum. Turn tone controls fully anticlockwise.

**NOTES:** Signal from generator should be reduced as circuits come into alignment. Reading on output meter should be kept as low as possible, consistent with adequate level for adjustment, to prevent operation of the AGC system which might cause misleading results.

Where two tuning peaks are found, the correct one is that with the core in the outer position.

**IF.** Switch to MW. Turn tuning gang to maximum capacity (fully meshed). Short



**Tuning drive system showing routing of cord and relative positions of drive drum and pointer with gang fully meshed. Slot in backplate permits adjustment of pointer position (see Service Notes)**

out oscillator section of gang (VC2 nearest front panel). Connect signal generator across the aerial section of gang (VC1).

Inject modulated 470kc/s signal and trim the cores of L15, L14, L13 and L12, in that order, for maximum output. Repeat with reduced signal input for optimum results. Continue to adjust until no further improvement results. Remove short from the oscillator section of gang.

**RF.** With the tuning gang fully meshed, check that the pointer lines up with calibration hole 6 (see dial drive diagram). If incorrect, adjust as described in Service Notes.

In all references to calibration holes, the short leg of the pointer is used for calibration.

**SW.** Switch to SW. Connect generator output to receiver aerial socket via dummy aerial. Tune receiver to 8mc/s (calibration hole 4). Inject modulated 8mc/s signal and trim core of L7 for maximum output. Adjust core of L2 for maximum output.

Tune receiver and generator to 16mc/s (calibration hole 2). Now adjust trimmers TC3 and TC1 for maximum output. Repeat these operations, as necessary, for optimum calibration.

**MW.** Switch to MW. Connect generator output to transmitting loop placed about 12in. from, and coaxial with, the ferrite rod assembly. Tune receiver to 600kc/s (calibration hole 5). Tune generator to 600kc/s.

Adjust core of L9 for maximum output. Adjust aerial coil L3, by sliding along ferrite rod, for maximum output.

Change receiver tuning to 1500kc/s (calibration hole 1). Retune generator to 1500kc/s and adjust trimmer TC2 for maximum output.

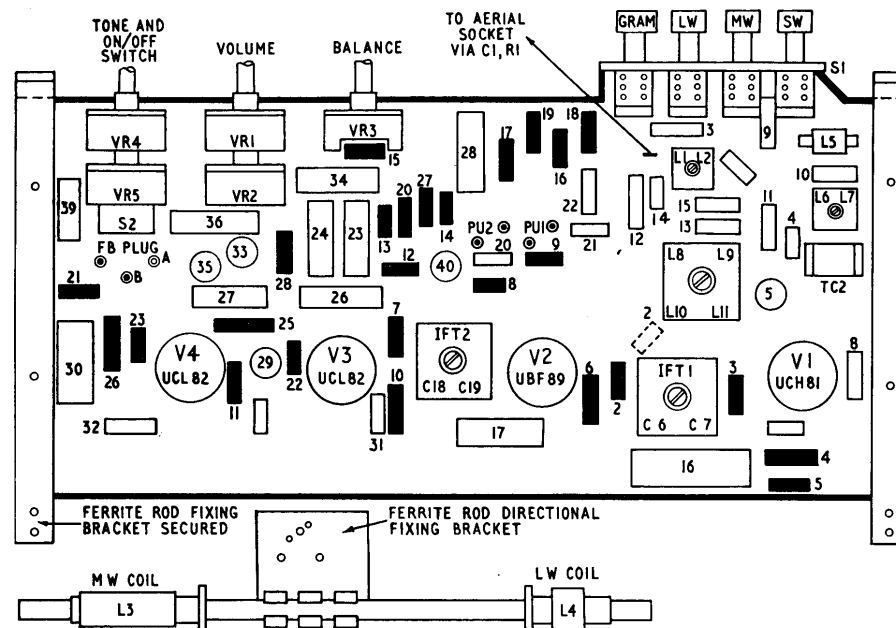
**LW.** Switch to LW. Set receiver pointer to 200kc/s (calibration hole 3). Tune in Light programme by adjusting core of L11. Then adjust aerial coil L4, by sliding along the ferrite rod, for maximum output. Repeat last two operations for optimum results.

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Above, printed circuit panel viewed from the component side. Below, layout of metal chassis showing location of main components. Printed panel is shown end-on near the lower edge of the chassis

